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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,628	07/26/2001	Jian Ni	PT001P2	5463

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EXAMINER	
HAMUD, FOZIA M	

ART UNIT	PAPER NUMBER
1647	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

File Copy

Office Action Summary	Application No. 09/912,628	Applicant(s) NI ET AL.	
	Examiner Fozia M Hamud	Art Unit 1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/14/03* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11,13,17-20 and 22-42* is/are pending in the application.

4a) Of the above claim(s) *11,13,17-20 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *23-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Applicant's amendment canceling claims 1-10, 12, 14-16, 21 and adding new claims 23-42, filed on 14 March 2003 in Paper No:6, is acknowledged. Thus claims 11, 13, 17-20, 22-42 are pending.

Election/Restrictions

2. Applicant's election with traverse of Group I, and polynucleotides encoding SEQ ID NO:7, in Paper No. 6, filed on 14 March 2003 is acknowledged. The traversal is on the grounds that the Examiner has not established that there would be a serious burden of search in examining all of the groups. Applicants further submit that a search of the claims of the groups directed to a sequence would also provide useful information for the claims of the other groups directed to that sequence. Applicants' second ground of traversal is that, according to MPEP §803.04, even when nucleotide sequences encoding different proteins are contained in an application, a reasonable number, normally ten sequences, will be examined in a single application. Thus, Applicants argue that polynuceotides encoding SEQ ID Nos:5-7, the polypeptides encoded thereby, antibodies recognizing said polypeptide and methods of using the same should be searched and examined in the present application. Finally, Applicants submit that if an elected product is found allowable, "withdrawn process claims which depend from or otherwise include all of the limitations of the allowable product claim will be rejoined", MPEP §821.04.

These grounds of traversal have been fully considered but are not deemed persuasive. With respect to Applicants' first traversal, the inventions of Groups I-VIII are drawn to patentably distinct inventions and are classified in different classes and sub-classes and each distinct subject has attained recognition in the art as a separate subject for inventive effort, and also a separate field of search, (MPEP § 808.02). Also, contrary to Applicants' assertion a single search would not reveal art pertinent to all of the recited inventions. Thus, searching more than one product would pose undue burden on the Examiner.

With respect to Applicants' second ground of traversal, although it is accurate that the commissioner has partially waived the requirement of 37 C.F.R 1.141 and will permit a reasonable number of nucleotides to be claimed in a single application, this waiver is not applicable to the instant application for the following reason: nucleotide sequences encoding different proteins are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute independent and distinct inventions within the meaning of 35 U.S.C. 121, (see MPEP 2434). Absent evidence to the contrary, each such nucleotide sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141. The polypeptides of SEQ ID Nos: 5-7 of the instant application are distinct and seem to have no common structural feature; (SEQ ID NO:5 comprises 435 amino acid residues, SEQ ID NO:65 comprises 311 amino acid residues and SEQ ID NO:7 comprises 215 amino acid residues), see table 1

on page 18, thus, nucleotide sequences encoding these polypeptides are products which possess characteristic differences in structure and function.

Finally, with respect to Applicants' last ground of traversal, in the event where the polynucleotides of Group I are found allowable, method claims of making and using the said polynucleotides, will be rejoined as long as the method claims do not precipitate new grounds of rejections.

The requirement is still deemed proper and is therefore made FINAL.

The elected invention is Group I (canceled claims 1-10, 14-15, new claims 23-42). Claims 11, 13, 17-20 and 22 are withdrawn from prosecution as being drawn to a non-elected invention.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested "nucleic acid encoding human serpin polypeptide".

Claim Rejections - 35 U.S.C. § 101/112

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4a. Claims 23-42 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

Claims 23-42 of the instant invention are directed to an isolated polynucleotide comprising nucleotides 1 to 706 of SEQ ID NO:3, said polynucleotide encoding a polypeptide that comprises amino acid residues 1-215 of SEQ ID NO:7, a vector comprising said nucleic acid, a recombinant host cell comprising said vector and a method of producing the encoded protein.

The specification describes the protein encoded by the claimed polynucleotide as sharing sequence homology with a human thrombin inhibitor, which is an intracellular member of the serine protease inhibitor (serpin) family, (see page 14, last paragraph). Instant specification states that gene 3 (claimed nucleic acid), is expressed primarily in healing abdomen wound tissue, human adrenal gland tumor tissue and macrophage-oaxLDL, (see page 17). The specification, thus asserts that the claimed polynucelotide can be useful as reagents for differential identification of the tissues or cell types present in a biological sample and for diagnosing cancer and other proliferative diseases. The specification also asserts that the homology between the protein encoded by the claimed polynuceotide and thrombin inhibitor, suggests that, the protein of the instant invention may be involved in apoptosis and tissue differentiation, and could be useful in cancer therapy or as a tumor marker, (page 17).

Although instant specification makes these assertions, it does not disclose any information regarding physiologic or functional characteristics of the protein encoded by the claimed nucleic acid. The polypeptide encoded by the claimed nucleic acid has never been expressed, no biological activity was assayed or determined for it, and only

a deduced amino acid sequence and general methods of expressing recombinant proteins is disclosed.

Furthermore, while, the instant specification asserts that the polypeptide encoded by the claimed nucleic acid can be used therapeutically, and discloses conventional protein and nucleic acid administration techniques, it does not disclose specific cancer which can be treated or diagnosed using the claimed nucleic acid or the encoded polypeptide. The specification establishes no connection between any physiological condition or disorder and the protein encoded by the claimed polynuceotide, i.e., is the claimed nucleic acid or the encoded polypeptide over expressed, under expressed or completely lacking in any disorder?

The expression pattern disclosed for the claimed nucleic acid is not sufficient for establishing a utility in diagnosing cancer or as a tumor marker, because instant specification does not disclose information regarding a correlative or causal relationship between the expression of the claimed nucleic acid and cancer. There must be some expression pattern that would allow the claimed polynucleotide to be used in a diagnostic manner. Many proteins are expressed in normal tissues and diseased tissues. Therefore, one needs to know, whether the claimed polynucleotide is either present only in cancer tissue to the exclusion of normal tissue or is expressed in higher levels in diseased tissue compared to normal tissue (i.e. over expression). Evidence of a differential expression might serve as a basis for use of the claimed polynucleotide as a diagnostic for a disease. However, in the absence of any disclosed relationship between the claimed polynucleotide or the protein that is encoded thereby and any

disease or disorder and the lack of any correlation between the claimed polynucleotide or the encoded protein with any known disease or disorder, any information obtained from an expression profile would only serve as the basis for further research on the observation itself. Furthermore, Applicants do not identify the types of cancer or proliferative disorders that can be diagnosed or treated using the claimed nucleic acid.

Although the instant specification asserts that the claimed nucleic acid encodes a member of the serine protease inhibitor family, the claimed nucleic acid and the encoded protein, both share only 35% homology to a placental human thrombin inhibitor. See attached copies of the comparison of SEQ ID NO:4 and 7 of instant invention and the sequences of the prior art human thrombin inhibitor (SEQUENCE COMPARISON 'A' and 'B', respectively). One of ordinary skill in the art would not reasonably expect a protein that has only 35% identity to another protein to possess the same activity with any degree of predictability. This would equate to mutation of a protein such that it is only 35% identical to the native protein and still hope that it would retain the function of the native protein.

Therefore, the claimed invention is directed to a nucleic acid encoding a polypeptide of as yet undetermined function or biological significance, therefore, unless Applicants demonstrate the physiological significance or the biological role of the instant nucleic acid and the protein it encodes, the claimed invention is not supported by either a specific and substantially asserted utility or a well established utility.

4b. Claims 23-42 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a substantially asserted utility or a

well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. Instant specification does not define the physiological role of the polypeptide encoded by the claimed nucleic acid, neither does it establish a link between this protein and a disease or a physiological condition. Therefore, there is no specific and substantial asserted utility or well established utility for the claimed nucleic acid or the encoded protein. The specification discloses only the sequence of the claimed nucleic acid and the encoded protein, and that is insufficient to establish a specific or substantial utility for the claimed invention.

Claim rejections-35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5a Claims 33-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is apparent that the plasmid HMCIS41, recited in claim 33 is required to practice the claimed invention. As such, said plasmid must be readily available or obtainable by a repeatable method set forth in the specification, or otherwise readily available to the public. If the host cell is not so obtainable or available, the requirements of 35 U.S.C.112, first paragraph, may be satisfied by a deposit of the plasmid.

The specification, provides an accession number and a date of deposit for plasmid HMCIS41, (see table 1 on page 18), however, the specification lacks complete deposit information for the deposit of the host cell. If a deposit was made under the terms of the Budapest Treaty, then an affidavit or declaration by Applicants, or a statement by an attorney of record over his or her signature and registration number, stating that the instant invention will be irrevocably and without restriction released to the public upon the issuance of a patent, would satisfy the deposit requirement made herein. If a deposit has not been made under the Budapest Treaty, then in order to certify that the deposit meets the criteria set forth in 37 CFR 1.801-1.809 and MPEP 2402-2411.05, Applicant may provide assurance of compliance by affidavit or declaration, or by a statement by an attorney of record over his or her signature and registration number showing that (a) during pendency of the application, access to the invention will be afforded to the Commissioner upon request, (b) all restrictions upon availability to the public will be irrevocable removed upon granting of the patent, © the deposit will be maintained in a public depository for a period of 30 years, or 5 years after the last request or for the enforceable life of the patent, whichever is longer, (d) a test of the viability of the biological material at the time of deposit (see 37 CFR 1.807) and (e) the deposit will be replaced if it should ever become inviable.

Conclusion

No claim is allowed.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fozia M Hamud whose telephone number is (703) 308-

8891. The examiner can normally be reached on Monday, Wednesday-Thursday, 6:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on (703) 308-4623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4227 for regular communications and (703) 308-0294 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Fozia Hamud
Patent Examiner
Art Unit 1647
May 30, 2003

GARY KUNZ
SUPERVISORY PATENT EXAMINER
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